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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,982	08/24/2001	Ravi Murthy	257/062	3330

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EXAMINER	
VEILLARD, JACQUES	
ART UNIT	**PAPER NUMBER**
2165	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/938,982	MURTHY ET AL.	
	Examiner	Art Unit	
	Jacques Veillard	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 24-33* is/are rejected.

7)☒ Claim(s) *21-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/8/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the Applicant's communication filed on 7/6/2004.

2. Claims 1-33 are pending and presented for examination.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 7/8/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Drawings

3. The replacement drawings sheets for figures 1 and 6, filed on 7/8/2004 is acknowledged as to the merits.

Response to Arguments

4. Applicant's arguments with respect to claims 1-33 filed on 7/6/2004 have been fully considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6, 13-17, 20, 24, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U. S. Pat. No. 5,241,648) in view of Bourne (U. S. Pat. No. 4,905,138).

As per claim 1, Cheng et al. disclose a "hybrid technique for joining tables" by providing the results of a relational database management system joined in a process requiring the existence of an index on the join columns of an inner table (See Cheng et al. Title, the abstract, and col.5, lines 19-32). In particular, Cheng et al. disclose the claimed limitations of: b) "fetching a subset of output data from a data producer" (See Cheng et al. col.6, line 29 through col.7, line 30, and col.9, lines 24-45); c) "sending the subset of the output data to a first consumer of the output data "(See Cheng et al. col.6, line 55 through col.7, line 68); d) "repeating steps b) and c) until all the output data has been fetched from the data producer" (See Cheng et al. col.8, line 1 through col.9, line 45).

It is noted, however, Cheng et al. did not specifically disclose the claimed limitations of: a) "performing a setup operation when a table function is called; and wherein the table function is a first consumer. On the hand, Bourne achieved this claimed feature by providing a parse table wherein the data needed in a semantics table to fire a rule is compared, in which the firing rule causes a function table to be evaluated. The function table includes function calls, which can perform user-desired functions (See Bourne Abstract, col.3, lines 57-68, col.6, lines 58-68, and col.13, line 59 through col.14, line 32).

Ti would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention was made to modify the techniques for joining tables of Cheng et al. by incorporating the function table called mechanism taught by Bourne. The motivation being to

have enhanced the technique of Cheng et al. by allowing it to fire a rule wherein the firing rule causes a function table to be evaluated, in which the function table includes function calls that can perform user desired functions more efficiently; thus, providing an intuitive easy-to-use, icon-based interface that enables it to analyze the table data quickly and efficiently by using a plurality of interpreters with programs and data generation capability where the programs and data are presented in a tabular data structure suitable for manipulation using ordinary database techniques (See Bourne Abstract, and col.3, lines 29-36).

As per claims 32 and 33, most of the limitations of these claims have been noted in the rejection of claim 1. These limitations have already been addressed in the rejection of claim 1 above. Applicant's attention is directed to the rejection of claim 1. Therefore they are rejected on similar grounds corresponding to the arguments given for the rejected claim 1 above.

As per claim 2, most of the limitations of this claim have been noted in the rejection of claim1. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the act of performing a setup operation comprises setting up a context object to maintain state" (See Cheng et al. col.10, lines 18-40).

As per claim 3, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which

the data producer comprises a second table function" (See Cheng et al. Figs.2, 3, and 4, element 10).

As per claim 4, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, the claimed limitations "in which the subset of the output data comprises a single data object or row of data" (See col.10, lines 20-25).

As per claim 5, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the subset of the output data comprises a plurality of data objects or rows of data" (See Cheng et al. abstract, col.2, lines 41-63, and col.7, lines 58-68).

As per claim 6, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "further comprising: e) performing a close operation after all the output data has been fetched from the data producer" (See Cheng et al. col.6, lines 38-39, and col.9, lines 24-44).

As per claim 13, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the

combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the data producer comprises a dynamically configurable return type" (See Cheng et al. col.10, lines 9-10, and lines 33-35).

As per claim 14, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the dynamically configurable return type is established at compile time" (See Cheng et al.col.3, lines 22-25, and col.6, lines 40-42).

As per claim 15, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which steps a) through d) are implemented within a database query language statement" (See Cheng et al.col.3, lines 53-68).

As per claim 16, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the database query language statement comprises SQL" (See Cheng et al. col.6, lines 34-37).

As per claim 17, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which

the subset of the output data is pipelined to a database query language statement" (See Cheng et al. col.5, lines 24-27, lines 31-33, lines 53-59, and col.9, lines 14-16).

As per claim 20, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "further comprising: e) send the subset of the output data to a second consumer of the output data" (See Bourne col.16, lines 56-68, and col.18, lines 10-32).

As per claim 24, most of the limitations of this claim have been noted in the rejection of claim. Applicant's attention is directed to the rejection of claim 1 above. In addition, the combination of Cheng et al. and Bourne, as modified, discloses the claimed limitations "in which the first consumer processes the subset of the output data in parallel" (See Bourne col.4, lines 3-7, col.19, line 64 through col.20, line 9, and col.21, lines 12-21).

7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U. S. Pat. No. 5,241,648) and Bourne (U. S. Pat. No. 4,905,138) as applied to claim 1, and further in view of Huelsbergen et al. (U. S. Pat. No. 6,052,699).

As per claim 7, most of the limitations of this claim have been noted in the rejection of claims1 and 6. Applicant's attention is directed to the rejection of claims 1 and 6 above.

It is noted, however, the combination of Cheng et al. and Bourne did not specifically discloses the claimed limitations of "wherein the close operation comprises garbage collection

operations" as recited in claim 7. On the hand, Huelsbergen et al. achieved this claimed feature by providing a garbage collection technique for the concurrent operation of a mutator and garbage collector (See Huelsbergen et al. abstract, col.1, lines 11-13, col.4, lines 26-30, col.5, lines 45-49, and col.6, lines 15-64).

It would have bee obvious for a person of ordinary skill in the art at the time of the Applicant's invention was made to modify the combination's teachings of Cheng et al. and Bourne with the teachings of Huelsbergen et al. to include a garbage collection operation because Huelsbergen provides a garbage collection technique which allows for fill concurrency between mutation, marking and weeping without the need for fine-gain synchronization.

As per claim 8, the combination of Cheng et al., Bourne and Huelsbergen et al., as modified, discloses the claimed limitations "in which the garbage collection operations comprises removal of a context object" (See Huelsbergen et al. col.7, line 57 through col.8, line 9, and col.14, line 54 through col.15, line 15).

As per claim 9, the combination of Cheng et al., Bourne and Huelsbergen et al., as modified, discloses the claimed limitations "in which the table function executes in a different execution thread than the data producer" (See Huelsbergen et al. Fig.2 component 210 and corresponding text, and col.4, lines 30-32).

As per claim 10, the combination of Cheng et al., Bourne and Huelsbergen et al., as modified, discloses the claimed limitations "in which the table function and the data producer

execute from an identical execution thread" (See Huelsbergen et al. col.3, line 62 through col.4, line 4).

8. Claims 11, 12, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U. S. Pat. No. 5,241,648) and Bourne (U. S. Pat. No. 4,905,138) as applied to claim 1, and further in view of Danneels et al. (U. S. Pat. No. 5,410,698).

As per claim 11, most of the limitations of this claim have been noted in the rejection of claim 1. Applicant's attention is directed to the rejection of claim 1 above.

It is noted, however, the combination of Cheng et al., Bourne and Huelsbergen et al., as modified, did not specifically discloses the claimed limitations "in which a callback function is passed from the table function". On the hand, Danneels et al. achieved this claimed feature by providing a method mechanism for loading software libraries including a callback function (See Daniels et al. col.20, line 58 through col.22, line 4, and col.23, line 44 through col.24, line 56).

It would have bee obvious for a person of ordinary skill in the art at the time of the Applicant's invention was made to modify the combination's teachings of Cheng et al, Bourne and Huelsbergen et al. with the teachings of Danneels et al. to include a callback function mechanism because Danneels et al disclose a method to provide multicasting on a computer network wherein a callback function type is used to notify user of asynchronous events.

As per claims 12, 18, and 19, the combination of Cheng et al., Bourne, Huelsbergen et al. and Danneels et al., as modified, teaches the claimed invention in which the callback function is executed on each subset of the output data fetched from the data producer and filters

inappropriate data (See Danneels et al.col.20, line 58 through col.22, line 4, and col.23, line 44 through col.24, line 56, col.28, lines 30-68).

9. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U. S. Pat. No. 5,241,648) and Bourne (U. S. Pat. No. 4,905,138) as applied to claims 1 and 24, and further in view of Kametani et al. (U. S. Pat. No. 4,803,613).

As per claims 25 and 26, most of the limitations of this claim have been noted in the rejection of claims 1 and 24. Applicant's attention is directed to the rejection of claims 1 and 24 above.

It is noted, however, the combination of Cheng et al. and Bourne did not specifically discloses the claimed limitations "in which multiple slaves exist to process the subset of the output data and determining which of the multiple slaves operate upon the subset of the output data" as recited in claim 24 above. On the hand, Kametani et al., achieved this claimed feature by providing a decentralized master-slave control in which multiple slaves exist to process the subset of the output data and determining which of the multiple slaves operate upon the subset of the output data (See Kametani et al. abstract, Fig. 2 and corresponding text, col.1, line 62 through col.2, line 36, and col.3, line 25 through col.4, line 68).

It would have bee obvious for a person of ordinary skill in the art at the time of the Applicant's invention was made to modify the combination's teachings of Cheng et al. and Bourne with the teachings of Kametani et al. to include a master slave system because Kametani et al. provide a system which has sufficient flexibility and expansibility with respect to both hardware and software wherein each of the slave module is allocated to one of the controlled

elements and has its own processor which interprets and executes commands for the controlled element allocated thereto.

As per claims 27 and 28, the combination of Cheng et al., Bourne and Kametani et al., as modified, discloses the claimed limitations "in which a partitioning definition is established to route the subset of the output data to an appropriate one of the multiple slaves and comprises either hash or range based partitioning" (See Kametani et al. col.5, line 4-through col.6, line 64, and col.8, line 18 through col.col.9, line 66).

10. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U. S. Pat. No. 5,241,648) and Bourne (U. S. Pat. No. 4,905,138) as applied to claim 1, and further in view of Sheffield et al. (U. S. Pat. No. 5,937,415).

As per claim 29, most of the limitations of this claim have been noted in the rejection of claim 1. Applicant's attention is directed to the rejection of claim 1 above.

It is noted, however, the combination of Cheng et al. and Bourne did not specifically discloses the claimed limitations of "further comprising: optimizing a query comprising the table function" as recited in claim 29. On the hand, Sheffield et al. achieved this claimed feature by providing a client/server database system mechanism for performing database queries includes optimizing a query comprising the table function (See Sheffield et al. col. 2, lines 42-59, Fig.2 element 266, and col.7, lines 26-32).

It would have bee obvious for a person of ordinary skill in the art at the time of the Applicant's invention was made to modify the combination's teachings of Cheng et al. and

Bourne with the teachings of Sheffield et al. to include a query optimizer because provides a system to processing of queries against information stored in a data processing system, such as an SQL Relational Database Management system by using an optimizer to select the join order of tables wherein the data pipeline lets a user easily move data from a high-end database to local database.

As per claims 30 and 31, the combination of Cheng et al., Bourne and Sheffield et al., as modified, teaches the claimed invention in which statistics for the table function are passed to an optimizer and self-determines statistics to optimize the query (See Sheffield et al. col.7, lines 1-32).

Allowable Subject Matter

11. Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: The prior taken singularly or in combination fail to teach or suggest a system or method further comprising the step of determining whether the subset of the output data should be routed to the first consumer or the second consumer; executing step c) if the subset of the output data should be routed to the first consumer; and executing step e) if the subset of the output data should be routed to the second consumer as recited in dependent claim 21.

Other Prior Art Made of Record

13.	Van Dyke et al	U. S. Pat. No. 5,175,856,
	Gusack	U. S. Pat. No. 6,112,209,
	Cheng et al..	U. S. Pat. No. 5,930,795, and
	Hill et al.	U. S. Pat. No. 5,724,588.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques Veillard whose telephone number is (571) 272-4086. The examiner can normally be reached on Mon. to Fri. from 9 Am to 4:30 PM, alt. Fri. off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on (571) 272- 4083.. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Rones

CHARLES RONES
PRIMARY EXAMINER

J.V

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December 29, 2004